

AMENDMENTS TO THE CLAIMS

Presented below is a complete set of claims with current status indicators.

1. (currently amended) An implantable cardiac device comprising:
sensing circuitry to sense whether a patient is at rest, the sensing circuitry further being operative to sense cardiac electrical activity; and
a sleep apnea detector to detect when a patient, who is at rest, is experiencing an episode of sleep apnea and to differentiate between central sleep apnea and obstructive sleep apnea based on oscillation of a parameter of the cardiac electrical activity, the cardiac electrical activity comprising evoked responses over a plurality of respiration cycles.
2. (original) An implantable cardiac device as recited in claim 1, wherein the sensing circuitry comprises an activity sensor to sense a patient's activity to determine whether the patient is at rest.
3. (original) An implantable cardiac device as recited in claim 1, wherein the sensing circuitry comprises an accelerometer that is used to determine whether the patient is at rest.
4. (original) An implantable cardiac device as recited in claim 1, wherein the sensing circuitry is configured to sense a respiration-related signal and the sleep apnea detector detects the episode of sleep apnea based upon the respiration-related signal.
5. (original) An implantable cardiac device as recited in claim 4, wherein the respiration-related signal is selected from a group of signals comprising a signal indicative of tidal volume, a signal indicative of respiration rate, and a signal indicative of minute ventilation, and a signal indicative of O2 saturation.
6. (currently amended) An implantable cardiac device as recited in claim 1, wherein the ~~sleep apnea detector uses amplitude modulation of intracardiac electrogram waveforms to differentiate between the central sleep apnea and the obstructive sleep apnea~~ parameter comprises an amplitude of an evoked response.

7. (original) An implantable cardiac device as recited in claim 1, further comprising a sleep apnea therapy module to administer different pacing therapies depending upon whether the sleep apnea detector classified the sleep apnea as central sleep apnea or obstructive sleep apnea.

8. (currently amended) An implantable cardiac device comprising:
a sensor that indicates rest;
a sensor to sense a respiration-related parameter;
a data acquisition system to acquire an intracardiac electrogram (IEGM) signal;
and
a processor to detect an episode of sleep apnea based on changes in the respiration-related parameter and to differentiate between central sleep apnea and obstructive sleep apnea based on oscillation of a parameter of the IEGM signal over a plurality of respiration cycles.

9. (original) An implantable cardiac device as recited in claim 8, wherein the rest-indicating sensor comprises at least one of an activity sensor, a position sensor, or an accelerometer.

10. (original) An implantable cardiac device as recited in claim 8, wherein the respiration sensor comprises a minute ventilation sensor.

11. (currently amended) An implantable cardiac device as recited in claim 8, wherein the parameter comprises an amplitude of an evoked response and the processor analyzes amplitude modulation of the IEGM signal the amplitudes of a plurality of evoked responses over consecutive respiration cycles, the processor classifying the episode as (1) obstructive sleep apnea when ~~the amplitude modulation of the IEGM signal~~ oscillation of the amplitudes is present and (2) as central sleep apnea when no significant ~~amplitude modulation of the IEGM signal~~ oscillation of the amplitudes is present.

12. (original) An implantable cardiac device as recited in claim 8, further comprising a pulse generator to generate pacing pulses, the processor prescribing

different pacing therapies depending upon whether the episode is determined to be central sleep apnea or obstructive sleep apnea.

13. (currently amended) An implantable cardiac device comprising:
sleep apnea detection means for detecting an episode of sleep apnea;
data acquisition means for collecting an intracardiac electrogram signal; and
classification means for classifying the episode as one of central sleep apnea
and obstructive sleep apnea based on analysis of oscillation of a parameter of the IEGM
signal over a plurality of respiration cycles.

14. (original) An implantable cardiac device as recited in claim 13, further
comprising:
sensing means for sensing a respiration signal; and wherein
the sleep apnea detection means comprises means for utilizing the respiration
signal to detect the episode of sleep apnea.

15. (original) An implantable cardiac device as recited in claim 14, wherein
the sensing means comprises one or more sensors selected from a group of sensors
comprising a minute ventilation sensor, an impedance sensor, and a respiration sensor.

16. (original) An implantable cardiac device as recited in claim 13, further
comprising means for stimulating a heart in response to at least selected episodes of
sleep apnea.

17. (currently amended) A method implemented by an implantable cardiac
device, the method comprising:
detecting an episode of sleep apnea; and
classifying the episode of sleep apnea as either central sleep apnea or
obstructive sleep apnea based upon oscillation of a parameter of an intracardiac
electrogram (IEGM) signal over a plurality of respiration cycles.

18. (original) A method as recited in claim 17, wherein the detecting
comprises monitoring a respiration-related parameter.

19. (original) A method as recited in claim 17, wherein the detecting comprises monitoring an oxygen-related parameter.

20. (currently amended) A method as recited in claim 17, wherein the parameter comprises an amplitude of an evoked response of the IEGM signal and the classifying comprises analyzing amplitude modulation of an evoked response waveform of the IEGM signal the amplitudes of a plurality of evoked responses and classifying the episode as (1) obstructive sleep apnea when ~~amplitude modulation of the IEGM signal~~ oscillation of the amplitudes is present and (2) central sleep apnea when no significant ~~amplitude modulation of the IEGM signal~~ oscillation of the amplitudes is present.

21. (original) A method as recited in claim 17, further comprising administering different pacing therapies according to said classification of the episode.